

August 5, 2005

MEMORANDUM TO: Luis A. Reyes  
Executive Director for Operations

FROM: Annette L. Vietti-Cook, Secretary **/RA/**

SUBJECT: STAFF REQUIREMENTS - SECY-05-0113 - DENIAL OF A  
PETITION FOR RULEMAKING TO REVISE APPENDIX K TO 10  
CFR PART 50 AND ASSOCIATED GUIDANCE DOCUMENTS  
(PRM-50-76)

The Commission has approved the staff's recommendation to deny the petition for rulemaking, PRM-50-76, that requested the agency to revise the metal-water oxidation criteria in Appendix K to 10 CFR Part 50 and Regulatory Guide 1.157. The Commission has approved publication of the *Federal Register* notice and dispatch of the letter to the petitioner subject to incorporation of the comments and changes noted below.

(EDO)

(SECY Suspense:

9/9/05)

1. The staff should confirm that the various data sets, tests, and experiments it discussed in support of denial of the petitioner's request are publicly available and that they are appropriately referenced in the *Federal Register* Notice. If the documentation of the referenced data sets, tests, and experiments are in ADAMS, the appropriate accession numbers should also be referenced in the *Federal Register* Notice.
2. The staff should ensure that the *Federal Register* Notice adequately defines all the acronyms used.
3. The following sentence contained on page 2, lines 4 and 5 of the letter to the petitioner and page 21, lines 8 and 9 of the Federal Register Notice needs to be modified to clarify how these experiments relate to the denial of the petition. "The NRC funded more than 50 Zircaloy clad bundle reflood experiments at the National Research Universal (NRU) reactor."
4. The following sentence contained on page 2, lines 5 through 10 of the letter to the petitioner and page 21, lines 10 through 13 of the Federal Register Notice needs to be modified to clarify how these programs relate to the denial of the petition. "The NRC is currently conducting and evaluating experimental and analytical programs on fuel cladding behavior.....to evaluate the adequacy of current 50.46 oxidation-related criteria and models."
5. The following paragraph on page 2 of the letter to the petitioner and page 22 of the

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DISPATCH OF THE LETTER TO THE PETITIONER.

Federal Register Notice needs to be modified to clarify how this information relates to the denial of the petition.

“The NRC applied the Cathcart-Pawel oxygen uptake and ZRO<sub>2</sub> thickness equations to the four FLECT Zircaloy experiments ..... [start new paragraph] The NRC applied the Cathcart-Pawel oxide thickness equation to 15 of their transient temperature experiments ..... This result is consistent with the application of the Cathcart-Pawel equations, which are intended for use in best-estimate LOCA calculations in accordance with RG 1.157.”

Additional specific changes to the *Federal Register* notice

6. On page 1, paragraph 1, revise line 5 to read ‘ ... deficiencies in the **correlations used for** calculation of ....’ Revise line 6 to read ‘ ... states that the **correlations do** calculation **does** not ....’
7. On page 4, paragraph 1, revise line 5 to read ‘ ... does not **include any allowance** allow for the ....’
8. On page 4, paragraph 2, revise line 2 to read ‘ ... ~~tests that,~~ in the petitioner’s opinion ; **that the tests discussed in ANL-6548** do not ....’
9. On page 5, 1<sup>st</sup> full paragraph (after the bullets), revise line 1 to read ‘ ... conclusions **include a statement that** “overlooks the very ....’
10. On page 10, paragraph 1, revise line 5 to read ‘ ... that ~~the calculated~~ ECCS cooling ....’
11. On page 12, 1<sup>st</sup> full paragraph, revise line 3 to read ‘ ... correlation **in the temperature range important for clad oxidation calculations for LOCAs.** ~~above 1900 °F.~~ In the ....’ Delete the last sentence (Only directly-heated ... WCAP-7665.)
12. On page 13, 1<sup>st</sup> full paragraph, revise line 2 to read ‘ ... discussed under issue **3 2.**’
13. On page 16, paragraph 1, revise lines 1 and 2 to read ‘ ... and the industry **have continued to** ~~are currently~~ conducting and evaluating ~~ing~~ experimental ....’ Revise lines 4 through 6 to read ‘ ... system pressure. **As is the case with many other research activities and their link to the agency’s regulatory framework, an** ~~An~~ important objective of this work is **the confirmation to evaluate the adequacy** of current § 50.46 oxidation criteria and models **and the development of more realistic, performance-based, and contemporary criteria and models.**’
14. On page 16, paragraph 2, revise line 1 to read ‘The **NRC disagrees with the petitioner’s assertion** ~~petitioner is mistaken in asserting~~ that the ....’
15. On page 18, 2<sup>nd</sup> full paragraph, revise line 1 to read ‘~~The high~~ **High**-temperature tests similar ....’ Revise line 2 to read ‘ ... reactors (PWRs) **and would produce very little useful heat transfer information.**’ Delete the sentences in lines 3 through 7 (Also, no realistic ... transfer information.) Insert the following new sentence at the end:

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'Therefore, the NRC does not believe that such tests are necessary.'

16. On page 21, revise line 2 from the top to read ' ... the correlation **for the temperature range important to clad oxidation calculations for LOCAs above 1900 °F.**'
17. On page 21, 2<sup>nd</sup> full paragraph, revise line 3 to read ' ... NRU reactor, **and is continuing to conduct and evaluate experimental and analytical programs on fuel cladding behavior.**'
18. On page 21, delete the 3<sup>rd</sup> full paragraph (The NRC is ... criteria and models.)
19. On page 22, 2<sup>nd</sup> full paragraph, revise line 5 to read ' ... of PRM-50-78 **and addressed by the staff's evaluation of that petition for rulemaking.**'

cc: Chairman Diaz  
Commissioner Merrifield  
Commissioner Jaczko  
Commissioner Lyons  
DOC  
OGC  
CFO  
OCA  
OPA  
Office Directors, Regions, ACRS, ACNW, ASLBP (via E-Mail)  
PDR

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